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EXAMINER	
VO, TUNG T	

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2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/682,385	Applicant(s) ZHANG ET AL.	
	Examiner Tung T. Vo	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Wasserman et al. (US 5,812,791).

Re claims 1, 17, 21, and 24, Wasserman discloses a computer system comprises a readable medium including instructions for processing a compressed bitstream comprising video data, the system comprising (col. 6, lines 26-col. 7 line 24):

means (210 of fig. 2) for carrying out the step of parsing a portion of the compressed bitstream before motion compensation on video data included in the portion (fig. 4, see also col. col. 13, lines 60 through col. 17, line 9);

means (210 of fig. 2) for carrying out the step of obtaining motion information related to the video data, the motion information comprising a set of motion vectors (MOTION VECOTR DATA of fig. 4);

means (200 of fig. 1) for identifying a reference sub-region (Block, Macroblocks, 8x8 pixels) based on at least the motion information;

means (106, 110, 160, 180 of fig. 2) for storing a reference sub-region (macroblocks are identified by the parser (210 of fig. 2)) identified by the motion information in a first memory

(110 of fig. 2) before performing motion compensation using the set of motion vectors (col. 10, lines 16-28);

means (175 of fig. 2) for performing motion compensation on the video data using the reference sub-region stored on the first memory (110 of fig. 3, in conjunction with memory controller 106 and 160 of fig. 3).

Re claim 2, Wasserman further discloses wherein the first memory source is an on-chip memory source (110 of fig. 12, e.g. the memory stores entire frame).

Re claim 3, Wasserman further discloses wherein storing the reference sub-region in the first memory comprises performing a direct memory access (110 and 170 of fig. 2) based on the motion vector (212, 180 of fig. 2).

Re claim 4, Wasserman further discloses wherein the second memory source is an off-chip memory source (180 of fig. 2) and the direct memory access includes accessing the second memory source (col. 10, lines 16-28).

Re claim 5,Wasserman further discloses the step of storing the motion information in the first memory (110 of fig. 2).

Re claim 6, Wasserman further disclose wherein obtaining motion information comprises extracting and decoding the set of motion vectors from the compressed bitstream (210, 212 of fig. 2; see also col. 7, lines 1-24).

Re claim 7, Wasserman further discloses wherein the time that the **reference sub-region (macro-block is considered as reference sub-region) is stored in** the first memory (110 of fig. 2) before performing motion compensation using the set of motion vectors (212 of fig. 4) comprises the time required for to complete a direct memory access to store the reference sub-region in the first memory (Control Register, mpgRegs of fig. 2)

Re claim 8, Wasserman further discloses wherein the time that the reference sub-region is stored in the first memory (110 of fig. 2) before performing motion compensation using the set of motion vectors comprises an estimated time for a processor to reconstruct one macroblock (102 of fig. 2).

Re claim 9, Wasserman further discloses wherein storing the reference sub-region further comprises storing multiple reference sub-regions (figs. 8, 10A, 10B).

Re claim 10, Wasserman further discloses wherein the multiple reference sub-regions are included in a reference window, the reference window comprising a set of reference window sub-regions (fig. 8).

Re claims 11 and 23, Wasserman further discloses the step of creating the reference window comprising the set of reference window sub-regions (figs. 8, 10B), the set of reference window sub-regions including the reference sub-region identified by the set of motion vectors (each of sub-regions has its own motion vector that is detected by motion processor (212 of fig. 2, see also cols 19-21); and storing the set of reference window sub-regions in the first memory source (col. 21, TABLES 15, 16).

Re claims 12-13, 19-20, Wasserman further discloses wherein the reference window has a trapezoidal array (rectangular array, fig. 1), wherein the motion information is the upper left window in the trapezoidal array (the motion vector processor (212 of fig. 2) determines the motion vector of the maroblock from the left to the right, therefore, each macroblock has its own motion vector).

Re claim 14, Wasserman further discloses wherein the video data comprises a macroblock (Macroblock of fig. 1, fig. 10B).

Re claim 15, Wasserman further discloses the step of converting the motion information to an DMA instruction (host computer, 102 of fig. 2).

Re claim 16, Wasserman further discloses the step of obtaining motion information (160 and 170 of fig. 2, e.g. determining which MPEG sequence is transferred to the decoder 200 of

fig. 2), from a second compressed bitstream and performing motion compensation on video data included in the second compressed bitstream (175, 210, 212 of fig. 2).

Re claim 22, Wasserman further discloses means for extracting and decoding the motion information from the compressed bitstream (200, 210, 214, 218 of fig. 2).

Re claims 25 and 26, Wasserman further discloses DMA (170 of fig. 7) that is considered on-chip memory which forms a part of a processor (150, 175 of fig. 2), the processor (175 of fig. 2) perform the motion compensation;

See also figures 12 and 13 of Wasserman for other embodiment that applies instruction programs for the claimed invention.

2. Claims 1-2, 5-13, 17-20, 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Oku et al. (US 6,084,637).

Re claims 1, 17, 21, and 24, Oku computer system comprises a readable medium including instructions for processing a compressed bitstream comprising video data, the system comprising (figures 1, 13, and 18):

means (2 of fig. 1) for carrying out the step of parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

means (2 of fig. 1, decoder extracts the motion vector and image data) for carrying out the step of obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

means (1 of fig. 1) for identifying a reference sub-region based on at least the motion information (encoded data included information data and motion vectors; wherein the memory control identifies the macro-block line as a unit and the memory area is divided into sub-areas to write the decoded data (reference sub-regions) to each sub-area, figs. 4-5 and Col. 11, lines 9-37).

means (6 and 9 of fig. 1, writing the encoded data the comprises information data with motion vectors) for storing the reference sub-region (fig. 4 and fig. 5) identified by the motion information in a first memory (11 of fig. 1) before performing motion compensation using the set of motion vectors;

means (4 of fig. 1) for performing motion compensation on the video data using the reference sub-region stored on the first memory.

Re claim 2, Oku further discloses wherein the first memory source is an on-chip memory source (11 of fig. 1, e.g. the memory stores entire frame).

Re claim 5, Oku further discloses the step of storing the motion information in the first memory (6, 9 and 11 of fig. 1).

Re claim 6, Oku further disclose wherein obtaining motion information comprises extracting and decoding the set of motion vectors from the compressed bitstream (2 of fig. 1; col. 9, lines 35-45).

Re claim 7, Oku further discloses wherein the time that the **reference sub-region is stored in** the first memory (6 and 11 of fig. 1) before performing motion compensation using the set of motion vectors (4 of fig. 1) comprises the time required for to complete a direct memory access to store the reference sub-region in the first memory (fig. 17, col. 4 line 45 through col. 5, line 55).

Re claim 8, Oku further discloses wherein the time that the reference sub-region is stored in the first memory (col. 4, line 45 through col. 5, line 55) before performing motion compensation using the set of motion vectors comprises an estimated time for a processor to reconstruct one macroblock (FM1 of fig.17).

Re claim 9, Oku further discloses wherein storing the reference sub-region further comprises storing multiple reference sub-regions (fig. 14, sub-regions is reference picture area (1), (2), and (3)).

Re claim 10, Oku further discloses wherein the multiple reference sub-regions are included in a reference window, the reference window comprising a set of reference window sub-regions (fig. 30).

Re claims 11 and 23, Oku further discloses the step of creating the reference window comprising the set of reference window sub-regions (fig. 30), the set of reference window sub-regions including the reference sub-region identified by the set of motion vectors (each of

sub-regions has its own motion vector that is detected by motion compensation (4 of fig. 1); and storing the set of reference window sub-regions in the first memory source (11 of fig. 1).

Re claims 12-13, 19-20, Oku further discloses wherein the reference window has a trapezoidal array (rectangular array as macroblocks, col. 4, lines 11-24), wherein the motion information is the upper left window in the trapezoidal array (the motion vector detector determines the motion vector of the maroblock from the left to the right, therefore, each macroblock has its own motion vector, which used in the MEPG encoder).

Re claim 14, Oku further discloses wherein the video data comprises a macroblock (Macroblock, col. 4, lines 10-36).

Re claim 22, Oku further discloses means for extracting and decoding the motion information from the compressed bitstream (2 of fig. 1).

Response to Arguments

2. Applicant's arguments filed 02/11/04 have been fully considered but they are not persuasive.

The applicant argued that neither Wasserman nor Oku teaches "storing a reference sub-region identified by the motion information" and "on-chip memory", pages 7-9 of the remarks.

The examiner respectfully disagrees with the applicant. It is submitted that the reference sub-region (GOP comprises pictures I, B, and P; picture comprises Slice that divide into Macroblock, each Macroblock has Block, each block has pixels; the Block of pixels has been encoded and then stored in the memory based on the motion information) is stored in the first memory (110 of fig. 1) that is called on-chip. It is further submitted that means (9 of fig. 1) for storing the reference sub-region (fig. 4 and fig. 5) identified by the motion information in a first memory (11 of fig. 1) before performing motion compensation using the set of motion vectors (fig. 4, e.g. the reference sub-regions are reference picture area (1) and (2), B picture area, OSD data area and coded picture data buffering area; these areas are identified by the operation mode control (1 of fig. 1) and the decoder (2 of fig. 1) based on the motion information that is predicted by the motion compensation (4 of fig. 1), and the reference sub-regions are stored in the memory (11 of fig. 1, fig. 5) based on the motion information from motion compensation (4, 9, and 11 of fig. 1)). Oku also teach the memory (11 of fig. 1) has the same function, which stores the reference sub-regions, so the memory (11) must be on chip memory. In view of discussion above, Wasserman or Oku anticipates the claimed features.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung T. Vo whose telephone number is (703) 308-5874. The examiner can normally be reached on 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris. Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TUNG T. VO
PATENT EXAMINER